

SECTION 08 71 00 – DOOR HARDWARE

PART 1 GENERAL

1.1 SUMMARY

- A. Door hardware for doors specified in "Hardware Sets" and required by actual conditions. Include screws, bolts, expansion shields, electrified door hardware, and other devices for proper application of hardware.
- B. Products supplied but not installed under this Section:
 - 1. Hardware for aluminum doors will be furnished under this Section, but installed under Division 08 Openings.
 - 2. Electrified hardware will be furnished under this Section, but installed by the security contractor.
 - 3. Final replacement of cylinder cores shall be installed by Owner.
 - 4. Hold open wall magnets.

1.2 RELATED DIVISIONS

- A. Division 01 – Section "Alternates" for alternates affecting this section.
- B. Division 07 – Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
- C. Division 08 - Openings.
- D. Division 13 - Special Construction.
- E. Division 26 - Electrical.
- F. Division 28 - Fire Detection and Alarm.

1.3 REFERENCES

- A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI):
 - 1. ANSI/BHMA A156.1 Butts & Hinges (2006).
 - 2. ANSI/BHMA A156.2 Bored & Preamsembled Locks & Latches (2011).
 - 3. ANSI/BHMA A156.3 Exit Devices (2008).
 - 4. ANSI/BHMA A156.4 Door Controls - Closers (2008).
 - 5. ANSI/BHMA A156.5 Cylinders and Input Devices for Locks (2010).
 - 6. ANSI/BHMA A156.6 Architectural Door Trim (2010).
 - 7. ANSI/BHMA A156.7 Template Hinge Dimensions (2009).
 - 8. ANSI/BHMA A156.8 Door Controls - Overhead Stops and Holders (2010).
 - 9. ANSI/BHMA A156.10 Power Operated Pedestrian Doors (2011).
 - 10. ANSI/BHMA A156.12 Interconnected Locks & Latches (2005).
 - 11. ANSI/BHMA A156.13 Mortise Locks & Latches (2005).
 - 12. ANSI/BHMA A156.14 Sliding & Folding Door Hardware (2007).
 - 13. ANSI/BHMA A156.15 Closer Holder Release Devices (2011).
 - 14. ANSI/BHMA A156.16 Auxiliary Hardware (2008).
 - 15. ANSI/BHMA A156.17 Self Closing Hinges & Pivots (2010).
 - 16. ANSI/BHMA A156.18 Materials & Finishes (2006).
 - 17. ANSI/BHMA A156.19 Power Assist & Low Energy Power Operated Doors (2007).
 - 18. ANSI/BHMA A156.21 Thresholds (2009).
 - 19. ANSI/BHMA A156.22 Door Gasketing Systems (2012).
 - 20. ANSI/BHMA A156.23 Electromagnetic Locks (2010).
 - 21. ANSI/BHMA A156.24 Delayed Egress Locks (2003).
 - 22. ANSI/BHMA A156.25 Electrified Locks (2007).
 - 23. ANSI/BHMA A156.26 Continuous Hinges (2006).
 - 24. ANSI/BHMA A156.28 Keying Systems (2007).
 - 25. ANSI/BHMA A156.29 Exit Locks and Alarms (2007).

26. ANSI/BHMA A156.31 Electric Strikes (2007).
 27. ANSI/BHMA A156.32 Integrated Door Assemblies (2008).
 28. ANSI/BHMA A156.36 Auxiliary Locks (2010).
 29. ANSI/BHMA A156.115 Hardware Preparation in Steel Doors and Steel Frames (2006).
 30. ANSI/BHMA A156.115W Hardware Preparation in Wood Doors with Wood or Steel Frames (2006).
 31. ANSI/BHMA A250.13 Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies (2003).
- B. Underwriters Laboratories, Inc. (UL):
1. UL 10B – Fire Test of Door Assemblies.
 2. UL 10C Positive Pressure Fire Test of Door Assemblies.
 3. UL 305 – Panic Hardware.
 4. UL 1784 Air Leakage Test of Door Assemblies.
 5. UL/ULC Listed.
- C. Door and Hardware Institute (DHI):
1. DHI Publication - Keying Systems and Nomenclature (1989).
 2. DHI Publication - Abbreviations and Symbols.
 3. DHI Publication - Installation Guide for Doors and Hardware.
 4. DHI Publication - Sequence and Format of Hardware Schedule (1996).
- D. National Fire Protection Agency (NFPA)
1. NFPA 70 National Electrical Code 2017.
 2. NFPA 80 Standard for Fire Doors and Other Opening Protective's 2016.
 3. NFPA 101 Life Safety Code 2018.
 4. NFPA 105 Standard for the Installation of Smoke Door Assemblies 2016.
- E. Building Codes
1. The Florida Building Code 2020.
 2. The Florida Fire Prevention Code 2020.
 3. FGI Guidelines for Design and Construction of Outpatient Facilities 2018.
 4. Local Building Code.
- F. Florida Building Code Compliance:
1. Provide products where indicated with Florida Building Code Certification Number.
- 1.4 SUBMITTALS
- A. Submit in accordance with Conditions of the Contract and provisions of Section 01 33 00 - Administrative Requirements.
- B. Shop Drawings: Hardware schedule shall be organized in vertical format illustrated in DHI Publications Sequence and Formatting for the Hardware Schedule. Include abbreviations and symbols page according to DHI Publications Abbreviations and Symbols. Complete nomenclature of items required for each door opening as indicated
1. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of hardware.
 2. Architectural Hardware Consultant (AHC), as certified by DHI, who shall affix seal attesting to completeness and correctness, shall review hardware schedule prior to submittal.
- C. Submit manufacturer's catalog sheet on design, grade and function of items listed in hardware schedule. Identify specific hardware item per sheet, provide index, and cover sheet.
- D. Coordination: Distribute door hardware templates to related divisions within fourteen days of receiving approved door hardware submittals.
- E. Electrified Hardware: Provide electrical information to include voltage, and amperage requirements for electrified

door hardware and description of operation.

1. Description of operation for each electrified opening to include description of component functions including location, sequence of operation and interface with other building control systems.
2. Wiring Diagrams: Detail wiring for power, signal, and control system and differentiate between manufacturers installed and field installed wiring. Include the following:
 - a. System schematic.
 - b. Point to point wiring diagram.
 - c. Riser diagram.
 - d. Elevation of each door.
3. Detail interface between electrified door hardware and fire alarm, access control, security, and building control systems.

F. Door Hardware Schedule:

1. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
2. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
3. Indicate complete designations of each item required for each opening, include:
 - a. Door Index: door number, heading number, and Architect's hardware set number.
 - b. Quantity, type, style, function, size, and finish of each hardware item.
 - c. Name and manufacturer of each item.
 - d. Fastenings and other pertinent information.
 - e. Location of each hardware set cross-referenced to indications on Drawings.
 - f. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - g. Mounting locations for hardware.
 - h. Door and frame sizes and materials.
 - i. Degree of door swing and handing.
 - j. Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

G. Key Schedule:

1. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
2. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
3. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
4. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
5. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

H. Upon door hardware submittal approval, provide for each electrified opening, three copies of point to point diagrams.

- I. Maintenance Tool and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, removal and replacement of door hardware.
 - J. Closeout Submittals: Submit to Owner in a three ring binder or CD if requested.
 - 1. Warranties.
 - 2. Maintenance and operating manual including list of maintenance tools.
 - 3. Maintenance service agreement.
 - 4. Record documents.
 - 5. Copy of approved hardware schedule.
 - 6. Copy of approved keying schedule with bitting list.
 - 7. Door hardware supplier name, phone number and fax number.
- 1.5 QUALITY ASSURANCE
- A. Electrified door hardware shall be Listed and Labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authority having jurisdiction.
 - B. Hardware supplier shall employ an Architectural Hardware Consultant (AHC) as certified by DHI and a member of the seal program who shall be available at reasonable times during course of work for Project hardware consultation.
 - 1. Electrified Door Hardware Supplier Qualifications: Experienced door hardware supplier who has completed projects with electrified door hardware similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in service performance.
 - C. Door hardware shall conform to ICC/ANSI A117.1. Handles, Pulls, Latches, Locks and operating devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
 - D. Fire Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL 10C, unless otherwise indicated.
 - E. Fire Door Inspection: Prior to receiving certificate of occupancy have fire rated doors inspected by an independent certified Fire and Egress Door Assembly Inspector (FDAI), as certified by Intertek (ITS), a written report shall be submitted to Owner and Contractor. Doors failing inspection shall be adjusted, replaced or modified to be within appropriate code requirements.
 - F. Smoke and Draft Control Door Assemblies: Where smoke and draft control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
 - G. Door hardware shall be certified to ANSI/BHMA standards as noted, participate and be listed in BHMA Certified Products Directory.
 - H. Pre-installation Meeting: Comply with requirements in Division 1 Section "Project Meetings".
 - 1. Convene meeting seven days before installation. Participants required to attend:
 - 2. Contractor, installer, material supplier, manufacturer representatives, electrical contractor, security consultant and fire alarm consultant.
 - 3. Include in conference decisions regarding proper installation methods and procedures for receiving and handling hardware.
 - 4. Review sequence of operation for each type of electrified door hardware, inspect, and discuss electrical roughing-in and other preparatory work performed by other trades.
 - 5. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 - I. Within fourteen days of receipt of approved door hardware submittals contact Owner with representative from

hardware supplier to establish a keying conference. Verify keyway, visual key identification, number of master keys and keys per lock. Provide keying system per Owners instructions.

- J. Installer Qualifications: Specialized in performing installation of this Section and shall have five years minimum documented experience.
 - K. Hardware listed in Par.: Hardware Schedule is intended to establish a type and grade.
- 1.6 DELIVERY, STORAGE AND HANDLING
- A. Provide a clean, dry and secure room for hardware delivered to Project but not yet installed.
 - B. Furnish hardware with each unit marked and numbered in accordance with approved finish hardware schedule. Include door and item number for each type of hardware.
 - C. Pack each item complete with necessary parts and fasteners in manufacturer's original packaging.
 - D. Deliver permanent key, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to Owner shall be established at "Keying Conference."
 - E. Waste Management and Disposal: Separate waste materials for reuse or recycling in accordance with Division 1.
- 1.7 PROJECT CONDITIONS
- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
- 1.8 WARRANTY
- A. General Warranty: Owner may have under provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by Contractor under requirements of the Contract documents.
 - B. Special Warranty: Warranties specified in this article shall not deprive Owner of other rights. Contractor, hardware supplier, and hardware installer shall be responsible for servicing hardware and keying related problems.
 - 1. Ten years for manual door closers.
 - 2. Five years for mortise, auxiliary and bored locks.
 - 3. Five years for exit devices.
 - 4. Two years for electromechanical door hardware.
 - C. Products judged defective during warranty period shall be replaced or repaired in accordance with manufacturer's warranty at no cost to Owner. There is no warranty against defects due to improper installation, abuse and failure to exercise normal maintenance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Hager Companies, which is located at: 139 Victor St.; St. Louis, MO 63104; Toll Free Tel: 800-325-9995; Tel: 314-772-4400; Fax: 800-782-0149; Email: [request info \(bwilkins@hagerco.com\)](mailto:request info (bwilkins@hagerco.com)); Web: <http://www.hagerco.com>
- B. Acceptable Manufacturer: Allegion, 3451 Technology Avenue, Suite 7, 407-571-2000, Brian.Ramirez@Allegion.com. www.allegion.com,
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 HINGES

- A. Hinges, including electric hinges and self-closing hinges when scheduled, shall be of one manufacturer as listed for continuity of design and consideration of warranty and shall be certified and listed by the following:
 - 1. Butts and Hinges: ANSI/BHMA A156.1
 - 2. Template Hinge Dimensions: ANSI/BHMA A156.7
 - 3. Self-Closing Hinges: ANSI/BHMA 156.17

B. Butt Hinges:

1. Hinge weight and size unless otherwise indicated in hardware sets:
 - a. Doors up to 36 inches (914 mm) wide and up to 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of .134 inch (3.4 mm) and a minimum of 4-1/2 inches (114 mm) in height.
 - b. Doors from 36 inches (914 mm) wide up to 42 inches (1067 mm) wide and up to 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of .145 inch (3.7 mm) and a minimum of 4-1/2 inches (114 mm) in height.
 - c. For doors from 42 inches (1067 mm) wide up to 48 inches (1219 mm) wide and up to 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of .180 inch (4.6 mm) and a minimum of 5 inches (127 mm) in height.
 - d. Doors greater than 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of 0.180 inch (4.6 mm) and a minimum of 5 inches (127 mm) in height.
 - e. Width of hinge is to be minimum required to clear surrounding trim.
2. Base material unless otherwise indicated in hardware sets:
 - a. Exterior Doors: 304 Stainless Steel, Brass or Bronze material.
 - b. Interior Doors: Steel material.
 - c. Fire Rated Doors: Steel or 304 Stainless Steel materials.
 - d. Stainless Steel ball bearing hinges shall have stainless steel ball bearings. Steel ball bearings are unacceptable.
3. Quantity of hinges per door unless otherwise stated in hardware sets:
 - a. Doors up to 60 inches (1524 mm) in height provide 2 hinges.
 - b. Doors 60 inches (1524 mm) up to 90 inches (2286 mm) in height provide 3 hinges.
 - c. Doors 90 inches (2286 mm) up to 120 inches (3048 mm) in height provide 4 hinges.
 - d. Doors over 120 inches (3048 mm) in height add 1 additional hinge per each additional 30 inches (762 mm) in height.
 - e. Dutch doors provide 4 hinges.
4. Hinge design and options unless otherwise indicated in hardware sets:
 - a. Hinges are to be of a square corner five-knuckle design, flat button tips and have ball bearings unless otherwise indicated in hardware sets.
 - b. Out-swinging exterior and out-swinging access controlled doors shall have non-removable pins (NRP) to prevent removal of pin while door is in closed position.
 - c. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.
 - d. Electric Through Wire (ETW) to have appropriate number of wires to transfer power through door frame to door for proper connection of finish hardware and certified to handle an amperage rating of 3.5AMPS/continuous duty with 16.0AMPS/intermittent duty.
 - e. Provide mortar boxes for frames that require any electrically modified hinges if not an integral part of frame.
 - f. When shims are necessary to correct frame or door irregularities, provide metal shims only.
5. Acceptable Manufacturer:
 - a. Hager Companies BB1279/BB1191 standard weight, BB1168/BB1199 heavy weight.

2.3 CONTINUOUS HINGES

- A. Continuous hinges shall be of one manufacturer as listed for continuity of design and consideration of warranty and shall meet ANSI/BHMA A156.26 Grade 1.
- B. Continuous Geared Hinges: Determine model number by door and frame application, door thickness, frequency of use, and fire rating requirements according to manufacturer's recommendations. Length of hinge shall be 1

inch (25 mm) less door height unless otherwise stated in hardware sets.

C. Material and Design:

1. Base material: Anodized aluminum manufactured from 6063-T6 material, unexposed working metal surfaces shall be coated with TFE dry lubricant
2. Bearings:
 - a. Vertical loads shall be carried on Lubriloy RL bearings for Non-Fire Rated doors.
 - b. Standard weight hinges shall have a minimum spacing between bearings of 5-1/8 inch (130 mm). Typical door from 80 inches (2032 mm) to 84 inches (2134 mm) in height to have a minimum of 16 bearings.
 - c. Heavy Weight hinges shall have a minimum spacing between bearings of 2-9/16 inches (65 mm). Typical door from 80 inches (2032 mm) to 84 inches (2134 mm) in height to have a minimum of 32 bearings.
 - d. Removable Electric Through-Wire (RETW) shall have appropriate number of wires to transfer power through door frame to door for proper connection of finish hardware. Provide RETW in a form that can be removed for connection, servicing without removing entire hinge from door and frame, and certified to handle an amperage rating of 3.5AMPS/continuous duty with 16.0AMPS/intermittent duty.
 - e. Hinges shall have Rounded Back Cover Channel (RBCC).
 - f. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.
 - g. Fire rated hinges shall carry UL certification, up to and including 90-minute applications for wood doors and up to 3-hour applications for metal doors.

D. Acceptable Manufacturer:

1. Hager 780-224HD.

E. Continuous Pinned Hinges: Determine model number by door and frame application, door thickness, frequency of use, and fire rating requirements according to manufacturer's recommendations. Length of hinge shall be 1 inch (25 mm) less door height unless otherwise stated in hardware sets.

F. Material and Design:

1. Base material: 14 gauge type 304 stainless steel with a 1/4 inch (6 mm) diameter stainless steel non-rising pin.
2. Bearings: Vertical loads shall be carried on lubricated nylon 6/6 bearings between each knuckle and stainless steel pin.
3. Options:
 - a. Electric Through Wire (ETW) to have appropriate number of wires to transfer power through door frame to door for proper connection of finish hardware and is certified to handle an amperage rating of 3.5AMPS/continuous duty with 16.0AMPS/intermittent duty.
 - b. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.
 - c. Fire rated hinges are stamped with UL fire label, up to and including 90-minute applications for wood doors and up to 3-hour applications for metal doors.
 - d. Dust free bearings: Self-lubricating material provides clean and quiet operation and prevents metal on metal wearing. (DFB).

G. Acceptable Manufacturer:

1. Hager 790-900 standard, 790-905 swing clear.

2.4 PIVOTS SETS

- A. Pivots and pivots sets shall be of one manufacturer as listed for continuity of design and consideration of

warranty and meet ANSI/BHMA A156.4.

B. Offset Pivots:

1. Top pivot: Oil impregnated sintered bronze bushing, 3/4 inch (19 mm) offset, and furnished with wood and machine screws.
2. Intermediate pivot: Not load bearing used for door alignment, 3/4 inch (19 mm) offset, and furnished with wood and machine screws. Doors up to 90 inches (2286 mm) in height use one intermediate pivot. Each additional 30 inches (762 mm) add another intermediate pivot.
3. Bottom pivot: Mounts directly to floor, 3/4 inch (19 mm) offset. Door edges shall be beveled 1/8 inch (3 mm) in 2 inches (51 mm). Furnish wood and machine screws. Extended spindles are available in 1/2 inch (13 mm) increments up to 2 inches (51 mm).
4. Pivot Design and Options:
 - a. Electric Through Wire (E-M19) shall have appropriate number of wires to transfer power through door frame to door for proper connection of finish hardware. Provide 24 gauge wire rated for 2 amps, class II wiring applications.
 - b. Fire rated hinges shall carry UL certification, up to and including 90-minute applications for wood doors and up to 3-hour applications for metal doors.
5. Acceptable Manufacturer:
 - a. Rixson: 147 set, M19 intermediate.

C. Center Hung Pivots:

1. Top pivot: Walking beam type with retractable pin.
2. Bottom pivot: Mounts directly to floor. Extended spindles are available in 1/2 inch (13 mm) increments up to 2 inches (51 mm).
3. Pivot Design and Options:
 - a. Doors shall have radius on pivot edge. Provide sealed bearings for protection against weather and debris. Furnish with wood and machine screws.
 - b. Top pivot power transfer (E-H340) shall have appropriate number of wires to transfer power through door frame to door for proper connection of finish hardware. Provide 24 gauge wire rated for 2 amps.
4. Acceptable Manufacturer:
 - a. Rixson: 370 set.

2.5 INVISIBLE HINGES

- A. Invisible hinges shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet the requirements for Materials and Finishes: ANSI/BHMA A156.18; Provide invisible hinges tested and listed by UL.
- B. Material and Design: Construct with interpolated, laminated links connected with non-removable riveted pins which provide moving pivot points and allow for 180 degree opening. Material: High strength plated steel and heavy duty zinc alloy casting, or 300 series stainless steel and 300 series stainless steel castings.
- C. Acceptable Manufacturer:
 1. Soss 218 for 1-3/4 inches (44.5 mm) thick doors.

2.6 RESCUE HARDWARE

- A. Rescue hardware sets shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet the requirements for:
 1. Butts and Hinges: ANSI/BHMA A156.1
- B. Material and Design: Head and floor pivots shall consist of stainless steel and polycarbonate top and bottom units. Provide walking type cam operated pivots for top and bottom. Use with wood or hollow metal doors not exceeding 36 by 70 inches (914 mm by 1778 mm) and 135 pounds (61 Kg). Edge of doors shall be square on

- pivot side.
- C. Acceptable Manufacturer: Hager Companies, which is located at: 139 Victor St.; St. Louis, MO 63104; Toll Free Tel: 800-325-9995; Tel: 314-772-4400; Fax: 800-782-0149; Email: [request info \(bwilkins@hagerco.com\)](mailto:request info (bwilkins@hagerco.com)); Web: <http://www.hagerco.com>
 - 1. Hager Companies 512.
 - D. Combination Rescue Door Stop and Double Lipped Strike: Door release allows doors to be opened in both directions without damage to frame. Strike shall be full lip and be width dimension of jamb depth.
 - E. Acceptable Manufacturer:
 - 1. Hager Companies 455 for 5-3/4 inches (146 mm) jamb depth.
- 2.7 FLUSH BOLTS AND COORDINATORS
- A. Flushbolts shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer to be listed for Auxiliary Hardware: ANSI/BHMA A156.16
 - B. Labeled openings: Provide automatic or constant latching flush bolts per hardware schedule for inactive leaf of pairs of doors. Provide dust proof strikes for bottom bolt.
 - C. Non-Labeled openings: Provide two flush bolts for inactive leaf of pairs of doors per hardware schedule. Top bolt shall not be more than 78 inches (1981 mm) centerline from floor. Provide dust proof strike for bottom bolt.
 - D. Acceptable Manufacturer:
 - 1. Hager Companies 282D manual flush bolt, 292D/295W/296W auto flush bolt, 280X dust proof strike.
 - E. Coordinators: Provide for labeled pairs of doors with automatic flush bolts or with vertical rod exit device with a mortise-locking device per hardware schedule. Provide filler piece to extend full width of stop on frame. Provide mounting brackets for closers and special preparation for latches where applicable.
 - F. Acceptable Manufacturer:
 - 1. Hager Companies 297 coordinator, 297M bracket, 297N bracket for stops greater than 2-1/4 inches (57 mm).
- 2.8 FLUSHBOLTS FOR ALUMINUM DOORS
- A. Provide two-point flushbolt for inactive leaf of pairs of doors with locked and unlocked indicator. Match cylinder height of lock on active leaf with indicator. Provide stainless steel top and bottom bolts.
 - B. Acceptable Manufacturer:
 - 1. Adams Rite: MS1880.
- 2.9 ELECTRIC STRIKES
- A. Provide for use with type of locks shown on hardware schedule. Manufacturer shall meet the following:
 - 1. ANSI/BHMA A156.31 Electric Strikes and Frame Mounted Actuators Grade 1.
 - 2. UL Tested 1500 lb (675 Kg) static strength.
 - 3. UL listed for Fire Doors and Frames where applicable.
 - 4. UL 1034 Burglary Resistance.
 - 5. UL10C.3H fire rated, 4 feet by 8 feet (1219 mm by 2438 mm) door.
 - B. Material and Design:
 - 1. To accept up to 3/4 inch (19 mm) latch bolt and 1 inch (25 mm) deadbolt.
 - 2. Field reversible, Fail Safe or Fail Secure
 - 3. Dual voltage 12/24 VDC.
 - 4. Tamper resistant, stainless steel corrosion resistance parts, and cast body and keeper.
 - C. Options:
 - 1. Latch Bolt Monitoring (LBM) Signals the door is closed and latched or unlatched and open.
 - 2. Door Secure Monitor (DSM) Door secure and unlocked monitoring.
 - 3. Deadbolt Monitoring (DBM) Signals deadbolt projected or retracted.
 - 4. Plug in buzzer (BUZZ) Indicates Fail Secure strike is energized and unlocked.

- 5. Rectifier (RECT) Converts AC to DC
- D. Acceptable Manufacturer:
 - 1. Hager Companies 2930 series.
- 2.10 LOCKS AND LATCHES (GRADE 1 CYLINDRICAL)
 - A. Locks and latches shall be of one manufacturer as listed for continuity of design and consideration of warranty. Product to be certified and listed by following:
 - 1. ANSI/BHMA A156.2 Series 4000 Certified to Grade 1.
 - 2. ANSI/BHMA A250.13 Certified for a minimum design load of 1150lbf (100psf) for single out swinging doors measuring 36 inches (914 mm) in width and 84 inches (2134 mm) in height and a minimum design load of 1150lbf (70psf) for out swinging single doors measuring 48 inches (1219 mm) in width and 84 inches (2134 mm) in height.
 - 3. UL/cUL Labeled and listed for functions up to 3 hours for single doors up to 48 inches (1219 mm) in width and up to 96 inches (2438 mm) in height.
 - 4. UL10C/UBC 7-2 Positive Pressure Rated.
 - 5. ICC/ANSI A117.1.
 - B. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design:
 - 1. Lock and Latch chassis to be Zinc dichromate for corrosion resistance.
 - 2. Keyed functions to be of a freewheeling design to help resist against vandalism.
 - 3. Non-handed, field reversible.
 - 4. Thru-bolt mounting with no exposed screws.
 - 5. Levers shall be Zinc cast and plated to match finish designation in hardware sets.
 - 6. Roses shall be of solid Brass or Stainless Steel material.
 - C. Latch and Strike:
 - 1. Stainless Steel latch bolt with minimum of 1/2 inch (13 mm) throw and deadlocking for keyed and exterior functions. Provide 3/4 inch (19 mm) latchbolt for pairs of fire rated doors where required by door manufacture. Standard backset to be 2-3/4 inches (70 mm) and faceplate shall be adjustable to accommodate a square edge door or a standard 1/8 inch (3 mm) beveled edge door.
 - 2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4 inches (32 mm) by 4-7/8 inches (124 mm) with proper lip length to protect surrounding trim.
 - 3. Doors requiring lead line protection provide locks with 1/16 inch (1.5 mm) lead applied to lock and 1/16 inch (1.5 mm) lead wrapped around latch bolt.
 - 4. Provide knurled levers on entry side of doors that are potentially dangerous to visually impaired persons.
 - D. Electric Locks:
 - 1. Fail Safe (power locks lever) outside trim is locked when power is applied and unlocked when power is removed. Lockset will unlock in the event of a power failure. (EL).
 - 2. Fail Secure (power unlocks lever) outside trim is locked when there is no power and unlocked when power is applied. Lockset will be locked in the event of a power failure. (EU).
 - 3. Request to Exit: Monitors inside lever rotation. (RX).
 - E. Acceptable Manufacturer:
 - 1. Hager Companies: 3400 Series.
- 2.11 LOCKS AND LATCHES (GRADE 2 CYLINDRICAL)
 - A. Locks and latches shall be of one manufacturer as listed for continuity of design and consideration of warranty. Product to be certified and listed by following:
 - 1. ANSI/BHMA A156.2 Series 4000 Certified to Grade 2.
 - 2. ANSI/BHMA A250.13 Certified for a minimum design load of 860lbf (80psf) for single out swinging doors

measuring 36 inches (914 mm) in width and 84 inches (2134 mm) in height and a minimum design load of 860lbf (50psf) for out swinging single doors measuring 48 inches (1219 mm) in width and 84 inches (2134 mm) in height.

3. UL/cUL Labeled and listed for functions up to 3 hours for single doors up to 48 inches (1219 mm) in width and up to 96 inches (2438 mm) in height.
 4. UL10C/UBC 7-2 Positive Pressure Rated.
 5. ICC/ANSI A117.1.
- B. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design:
1. Lock and Latch chassis to be Zinc dichromate for corrosion resistance.
 2. Keyed functions to be of a freewheeling design to help resist against vandalism.
 3. Non-handed, field reversible.
 4. Thru-bolt mounting with no exposed screws.
 5. Levers shall be Zinc cast and plated to match finish designation in hardware sets.
 6. Roses shall be of solid Brass or Stainless Steel material.
- C. Latch and Strike:
1. Stainless Steel latch bolt with minimum of 1/2 inch (13 mm) throw and deadlocking for keyed and exterior functions. Standard backset to be 2-3/4 inches (70 mm) and faceplate shall be adjustable to accommodate a square edge door or a standard 1/8 inch (3 mm) beveled edge door.
 2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4 inches (32 mm) by 4-7/8 inches (124 mm) with proper lip length to protect surrounding trim.
 3. Doors requiring lead line protection provide locks with 1/16 inch (1.5 mm) lead applied to lock and 1/16 inch (1.5 mm) lead wrapped around latch bolt.
 4. Provide knurled levers on entry side of doors that are potentially dangerous to visually impaired persons.
- D. Acceptable Manufacturer:
1. Hager Companies: 3500 Series.
- 2.12 LOCKS AND LATCHES (GRADE 2 TUBULAR)
- A. Locks and latches shall be of one manufacturer as listed for continuity of design and consideration of warranty. Product to be certified and listed by following:
1. ANSI/BHMA A156.2 Series 4000 Certified to Grade 2.
 2. UL/cUL Labeled and listed for functions up to 3 hours for single doors up to 48 inches (1219 mm) in width and up to 96 inches (2438 mm) in height.
 3. UL10C/UBC 7-2 Positive Pressure Rated.
 4. ICC/ANSI A117.1.
- B. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design:
1. Zinc dichromate for corrosion resistance.
 2. Non-handed, field reversible.
 3. Levers are to be Zinc cast and plated to match finish designation in hardware sets.
 4. Roses are to be of solid Brass or Stainless Steel material and have a minimum diameter of 3 inches (152 mm).
- C. Latch and Strike:
1. Stainless Steel latch bolt with minimum of 1/2 inch (13 mm) throw and deadlocking for keyed and exterior functions. Standard backset to be adjustable from 2-3/8 inches (60 mm) to 2-3/4 inches (70 mm) and faceplate shall be adjustable to accommodate a square edge door or a standard 1/8 inch (3 mm) beveled edge door.

2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4 inches (32 mm) by 4-7/8 inches (124 mm) with proper lip length to protect surrounding trim.
 3. Provide knurled levers on entry side of doors that are potentially dangerous to visually impaired persons.
- D. Acceptable Manufacturer:
1. Hager Companies: 3600 Series.
- 2.13 LOCKS AND LATCHES (GRADE 1 MORTISE)
- A. Locks and latches shall be of one manufacturer as listed for continuity of design and consideration of warranty. Product to be certified and listed by following:
1. ANSI/BHMA A156.13 Series 1000 Certified to Grade 1 for Operational and Security.
 2. UL/cUL Labeled and listed up to 3 hours for single doors up to 48 inches (1219 mm) in width and up to 96 inches (2438 mm) in height.
 3. UL10C/UBC 7-2 Positive Pressure Rated.
 4. ICC/ANSI A117.1.
- B. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design:
1. Lock cases from fully wrapped, 12 gauge steel, Zinc dichromate for corrosion resistance.
 2. Non-handed, field reversible without opening lock case.
 3. Break away spindles to prevent unlocking during forced entry or vandalism.
 4. Levers are to be Zinc cast, Forged Brass or Stainless Steel and plated to match finish designation in hardware sets.
 5. Sectional Roses are to be of solid Brass or Stainless Steel material and have a minimum diameter of 2-7/16 inches (62 mm).
 6. Escutcheons are to be of solid Brass or Stainless Steel material.
 7. Armor fronts are to be self-adjusting to accommodate a square edge door or a standard 1/8 inch (3 mm) beveled edge door.
- C. Latch and Strike:
1. Stainless Steel latch bolt with minimum of 3/4 inch (19 mm) throw and deadlocking for keyed and exterior functions.
 2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4 inches (32 mm) by 4-7/8 inches (124 mm) with proper lip length to protect surrounding trim.
 3. Deadbolts to be 1-3/4 inches (44.5 mm) total length with a minimum of a 1 inch (25 mm) throw and 3/4 inch (19 mm) internal engagement when fully extended and made of Stainless Steel material.
 4. Doors requiring lead line protection provide locks with 1/16 inch (1.5 mm) lead applied to lock and 1/16 inch (1.5 mm) lead wrapped around latch bolt.
 5. Provide knurled levers on entry side of doors that are potentially dangerous to visually impaired persons.
- D. Electric Locks:
1. Fail Safe (power lock) outside trim is locked when power is applied and unlocked when power is removed. Lockset will unlock in the event of a power failure. (EL).
 2. Fail Secure (power unlock) Outside trim is locked when there's no power and unlocked when power is applied. Lockset will be locked in the event of a power failure. (EU).
 3. Latchbolt monitoring: Single switch SPDT mounted inside lockset monitors full extension of latchbolt. (LM).
 4. Door Position Monitor: Single switch SPDT Reed magnetic switch mounted inside lockset monitors whether door is fully closed. (DPM).
 5. Request to Exit: Monitors inside lever rotation. (RX).
- E. Acceptable Manufacturer:

1. Hager Companies: 3800 Series.
- 2.14 LOCKS AND LATCHES (GRADE 2 INTERCONNECTED)
 - A. Locks and latches shall be of one manufacturer as listed for continuity of design and consideration of warranty. Product to be certified and listed by following:
 1. ANSI/BHMA A156.12 Series 5000 Certified to Grade 2.
 2. UL/cUL Labeled and listed for functions up to 3 hours for single doors up to 48 inches (1219 mm) in width and up to 96 inches (2438 mm) in height.
 3. UL10C/UBC 7-2 Positive Pressure Rated.
 4. ICC/ANSI A117.1.
 - B. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design:
 1. Lock and Latch chassis to be Zinc dichromate for corrosion resistance.
 2. Keyed functions to be of a freewheeling design to help resist against vandalism.
 3. Non-handed, field reversible.
 4. Levers are to be Zinc cast and plated to match finish designation in hardware sets.
 5. Roses are to be of solid Brass or Stainless Steel material and have a minimum diameter of 2-1/2 inches (64 mm).
 - C. Acceptable Manufacturer:
 1. Hager Companies: 3700 Series.
- 2.15 PUSHBUTTON LOCK
 - A. Locks and latches shall be of one manufacturer as listed for continuity of design and consideration of warranty. Product to be listed by UL/cUL labeled and listed for functions up to 3 hours for single doors up to 48 inches (1219 mm) in width and up to 96 inches (2438 mm) in height.
 - B. Lock and latch function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design:
 1. Support 100 to 2000 PIN codes, multi-level user code and one time service codes. Provide free passage, group and total lock-out modes.
 2. Provide metal keypad with key override.
 - C. Acceptable Manufacturer:
 1. Alarm Lock: DL2700 Series.
- 2.16 PUSH/PULL LATCH
 - A. Latches shall be of one manufacturer as listed for continuity of design and consideration of warranty. Product shall meet the following:
 1. ICC/ANSI A117.1 Standards for Accessible and Usable Buildings and Facilities (2009).
 2. UL listed.
 - B. Material and Design:
 1. Latch: Stainless Steel.
 2. Push/Pull levers 1-15/16 inches (49 mm) by 4-1/2 inches (114 mm), escutcheon 3-1/16 inches (78 mm) by 5 inches (127 mm), and projection 2-5/8 inches (67 mm)
 3. Latch Bolt Throw 1/2 inch (13 mm) with 2-3/4 inches (70 mm) backset or 5 inches (127 mm) backset (optional).
 4. Mounts five positions: Levers down, levers up, one lever up one lever down (push), one lever up one lever down (pull), and levers point away from latch.
 5. Engraving: "PUSH", "PULL" (optional).
 - C. Acceptable Manufacturer:
 1. Hager Companies: 311H or 311L for lead lined.

2.17 DEADBOLTS (GRADE 1)

- A. Deadbolts shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer to be certified by the following:
 - 1. Auxiliary Locks: ANSI/BHMA A156.5 Grade 1.
 - 2. UL/cUL listed for functions up to 3 hours for "A" label.
 - 3. UL10C/UBC 7-2 Positive Pressure Rated.
- B. Deadbolt function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design:
 - 1. Latch bolt 1 inch (25 mm) throw, material brass with concealed harden steel roller to prevent sawing or cutting.
 - 2. Freewheeling collar design to help resists against vandalism.
 - 3. Non-handed, field reversible.
- C. Acceptable Manufacturer:
 - 1. Hager Companies: 3100 Series.

2.18 DEADBOLTS (GRADE 2)

- A. Deadbolts shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer to be certified by the following:
 - 1. Auxiliary Locks: ANSI/BHMA A156.5 Grade 1.
 - 2. UL/cUL listed for functions up to 3 hours for "A" label.
 - 3. UL10C/UBC 7-2 Positive Pressure Rated.
- B. Deadbolt function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design:
 - 1. Latch bolt 1 inch (25 mm) throw, material brass with concealed harden steel roller to prevent sawing or cutting.
 - 2. Freewheeling collar design to help resists against vandalism.
 - 3. Non-handed, field reversible.
 - 4. Deadbolts to be 1-3/4 inches (44.5 mm) total length with a minimum of a 1 inch (25 mm) throw and 3/4 inch (19 mm) internal engagement when fully extended and made of Stainless Steel material.
- C. Acceptable Manufacturer:
 - 1. Hager Companies: 3200 Series.

2.19 MORTISE DEADBOLTS

- A. Deadbolts shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer to be certified by the following:
 - 1. ANSI/BHMA A156.13 Series 2000 Grade 1 Operational and Security.
 - 2. UL/cUL listed for functions up to 3 hours for "A" label.
 - 3. UL10C/UBC 7-2 Positive Pressure Rated.
 - 4. ADA - Thumbturn.
- B. Deadbolt function numbers and descriptions of manufacturer's series as listed in hardware sets. Material and Design: Latch bolt projection 1 inch (25 mm) throw. Case steel, zinc dichromate. Armor front 5-9/16 inches (141 mm), case dimension 4-5/16 inches (110 mm) by 3-9/16 inches (90 mm) by 1 inch (25 mm).
- C. Acceptable Manufacturer:
 - 1. Hager Companies: 3830 Series.

2.20 MAGNETIC LOCKS

- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for ANSI/BHMA A156.23 Grade 1 Compliant. Design:
 - 1. Epoxy free, field upgradeable and repairable.

2. Interlocking mounting plate to secure wiring and mounting screws.
 3. 1,200 lb (540 Kg) holding force.
 4. Surfaces plated and anodized.
 5. Built-in field adjustable 0-30 seconds re-lock delay (TIME).
 6. Indicates door open and door closed (DPS).
 7. Indicates locked and unlocked, low holding power, tampering and obstruction between armature and magnetic core. (MBS).
 8. Indicates access cover removed, SPDT dry, 1 amp @ 30 VDC.
 9. Door coordinator mounting kit (DC-1).
 10. Spacer bracket for concrete filled and blade stop applications. (UF11V).
- B. Acceptable Manufacturer:
1. Hager Companies 2953 single, 2954 double.
- 2.21 INTERGRATED DELAYED EGRESS LOCK
- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for:
1. IBC.
 2. NFPA 101.
- B. Design:
1. Field selectable voice message and alarm tone, message selectable security or safety.
 2. Provide visual display countdown, indicates lock release and verifies if door was opened for egress.
 3. 1,650 lb (743 Kg) holding force.
 4. Field selectable activation: Door movement; Exit device with switch kit; Exit sense bar for non-latching doors.
 5. Field selectable automatic or manual relock upon power up after emergency release or power loss.
 6. Integrated three position key switch provides: Lock and alarm reset; Manual power up; Sustained bypass or timed bypass adjustable for 1, 5, 20, or 30 seconds.
 7. Field selectable prop alarm.
 8. Anti-tailgate feature.
 9. Single or multi-door zone control and reset capability.
 10. Custom message, language or shortened exit delay times.
 11. Magnetic bond sensor output (MBS).
 12. Door status sensor output (DPS).
 13. Anti-tamper sensor output (ATS).
- C. Acceptable Manufacturer:
1. Hager Companies 2958.
- 2.22 MAGNETIC SHEAR LOCK
- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Design:
1. 2,700 lb (1215 Kg) holding force.
 2. Door static sensor ensures door is at rest and aligned, before magnet is energized.
 3. Electronic circuitry incorporates door static, positioning, timed re-lock sensor, and voltage sensor.
 4. Noise dampers to reduce noise associated with locking and unlocking.
 5. Bond sensor indicates proper armature contact (MBS).
 6. Indicates door open and door closed (DPS).
 7. Herculite top rail armature adjustment bracket for leading edge adjustments (HTR)
- B. Acceptable Manufacturer:
1. Hager Companies 2965.

2.23 EXIT DEVICES (GRADE 1)

- A. Shall be touch pad type, finish to match balance of door hardware. Exit Devices shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer to be certified and or listed by the following:
 - 1. BHMA Certified ANSI A156.3 Grade 1.
 - 2. UL/cUL Listed for up to 3 hours for "A" labeled doors.
 - 3. UL10C/UBC 7-2 Positive Pressure Rated.
 - 4. UL10B Neutral Pressure Rated.
 - 5. UL 305 Listed for Panic Hardware.
 - 6. 2007 Florida Building Code Certification Number: FL9481.1.
 - 7. ANSI/BHMA A250.13 Severe Windstorm Resistant Component.
- B. Material and Design:
 - 1. Touch pad shall extend a minimum of one half-door width. Freewheeling lever design shall match design of locks levers. Exit device to mount flush with door.
 - 2. Latchbolts: Rim device - 3/4 inch (19 mm) throw, Pullman type with automatic dead-latching, stainless steel. Surface vertical rod device - Top 1/2 inch (13 mm) throw, Pullman type with automatic dead-latching, stainless steel. Bottom 1/2 inch (13 mm) throw, Pullman type, held retracted during door swing, stainless steel.
 - 3. Fasteners: Wood screws, machine screws and thru-bolts.
- C. Lock and Latch Functions: Function numbers and descriptions of manufacturer's series and lever styles indicated in door hardware sets.
- D. Acceptable Manufacturer: Hager Companies, which is located at: 139 Victor St.; St. Louis, MO 63104; Toll Free Tel: 800-325-9995; Tel: 314-772-4400; Fax: 800-782-0149; Email: [request info \(bwilkins@hagerco.com\)](mailto:request info (bwilkins@hagerco.com)); Web: <http://www.hagerco.com>
 - 1. Hager Companies: 4500/4600 Series.
- E. Electric Modifications:
 - 1. Electric Latch Retraction: Continuous duty solenoids retract the latch bolt for momentary or maintained periods of time.
 - 2. Provide Request to Exit (REX) switches as scheduled.
 - 3. Electrified Trim: Outside trim locked (EL) or unlocked (EU) by electric current.
 - 4. Delayed Egress with Wall Mounted Controller (4501 DE).

2.24 NON-LATCHING PRESURE SENSE PUSH BAR

- A. Shall be finish to match balance of door hardware. Non-latching push bars shall be of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Design: No moving parts. Tri-Failsafe, third redundant switch is automatically activated to release door if both sensors or electronics fail. Minimum projection from door 1.875 inches (48 mm). Two dry contact for lock release, request to exit, alarm, or CCTV. Activation force 5 lbs, field adjustable to 15 lb (6.75 Kg).
- C. Acceptable Manufacturer:
 - 1. Hager Companies 4801.

2.25 CYLINDERS AND KEYING

- A. Cylinders shall be of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Standards: Manufacturer shall meet the following:
 - 1. Auxiliary Locks: ANSI/BHMA A156.5
 - 2. DHI Handbook "Keying systems and nomenclature" (1989)
- C. Cylinders:
 - 1. Manufacturer's standard tumbler type, seven-pin IC core and seven-pin conventional core supported by

- the Hager H1 keyway.
 - 2. Shall be furnished with cams/tailpieces as required for locking device that is being furnished for project.
 - D. Keying:
 - 1. Copy of Owners approved keying schedule shall be submitted to Owner and Architect with documentation of which keying conference was held and Owners sign-off.
 - 2. Provide a bitting list to Owner of combinations as established, and expand to twenty five percent for future use or as directed by Owner.
 - 3. Key into Owner's existing keying system if applicable.
 - 4. Keys to be shipped to Owner's representative, individually tag per keying conference.
 - 5. Provide visual key control identification on keys.
 - 6. Provide interchangeable cores with construction cores as required per hardware schedule.
 - 7. Single seven-pin key shall operate both conventional cores and SFIC small format interchangeable cores.
 - E. Acceptable Manufacturer: Hager Companies, which is located at: 139 Victor St.; St. Louis, MO 63104; Toll Free Tel: 800-325-9995; Tel: 314-772-4400; Fax: 800-782-0149; Email: [request info \(bwilkins@hagerco.com\)](mailto:request info (bwilkins@hagerco.com)); Web: <http://www.hagerco.com>
 - 1. Hager Companies: 3900 Series H1 keyway.
- 2.26 PUSH/PULL PLATES AND BARS
- A. Push and pull plates shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer to be certified by the following:
 - 1. Architectural Door Trim: ANSI/BHMA A156.6.
 - 2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
 - B. Push plates: .050 inch (1.3 mm) thick, square corner and beveled edges with counter sunk screw holes. Width and height as stated in hardware sets.
 - 1. Acceptable Manufacturer:
 - a. Hager Companies: 30S.
 - C. Pull plates: .050 inch (1.3 mm) thick, square corner and beveled edges. Width and height as stated in hardware sets, 3/4 inch (19 mm) diameter pull, with clearance of 2-1/2 inches (64 mm) from face of door.
 - 1. Acceptable Manufacturer:
 - a. Hager Companies: H33J.
 - D. Push Pull Bar Sets: 1 inch (25 mm) round bar stock with 2-1/2 inches (64 mm) clearances from face of door. Offset to be 3 inches (76 mm), 90-degree standard. Center to center size should be door width less 1 stile width.
 - 1. Acceptable Manufacturer:
 - a. Hager Companies: H160D.
- 2.27 CLOSERS (CAST IRON BODY GRADE 1)
- A. Shall be product of one manufacturer. Unless otherwise indicated on hardware schedule, comply with manufacturer's recommendation for size of closer, depending on width of door, frequency of use, atmospheric pressure, ADAAG requirements, and fire rating. Manufacturer to be certified and or listed by the following:
 - 1. BHMA Certified ANSI A156.4 Grade 1.
 - 2. ADA Compliant ANSI A117.1.
 - 3. UL/cUL Listed up to 3 hours.
 - 4. UL10C Positive Pressure Rated.
 - 5. UL10B Neutral Pressure Rated.
 - B. Material and Design:
 - 1. Provide cast iron non-handed bodies with full plastic covers.
 - 2. Closers shall have separate staked adjustable valve screws for latch speed, sweep speed, and

- backcheck.
 - 3. Provide Tri-Pack arms and brackets for regular arm, top jamb, and parallel arm mounting.
 - 4. One-piece seamless steel spring tube sealed in hydraulic fluid.
 - 5. Double heat-treated steel tempered springs.
 - 6. Precision-machined heat-treated steel piston.
 - 7. Triple heat-treated steel spindle.
 - 8. Full rack and pinion operation.
 - C. Mounting:
 - 1. Out swing doors shall have surface parallel arm mount closers except where noted on hardware schedule.
 - 2. In swing doors shall have surface regular arm mount closers except where noted on hardware schedule.
 - 3. Provide brackets and shoe supports for aluminum doors and frames to mount fifth screw.
 - 4. Furnish drop plates where top rail conditions on door do not allow for mounting of closer and where backside of closer is exposed through glass.
 - D. Size closers in compliance with requirements for accessibility (ADDAG). Comply with following maximum opening force requirements. Interior hinged openings: 5.0 lb (2.25 Kg) Fire rated and exterior openings shall have minimum opening force allowable by authority having jurisdiction.
 - E. Fasteners: Provide self-reaming and self-tapping wood and machine screws and sex nuts and bolts for each closer.
 - F. Acceptable Manufacturer: Hager Companies, which is located at: 139 Victor St.; St. Louis, MO 63104; Toll Free Tel: 800-325-9995; Tel: 314-772-4400; Fax: 800-782-0149; Email: [request info \(bwilkins@hagerco.com\)](mailto:request info (bwilkins@hagerco.com)); Web: <http://www.hagerco.com>
 - 1. Hager Companies: 5100 Series.
- 2.28 CLOSERS (ALUMINUM BODY GRADE 1)
- A. Shall be product of one manufacturer. Unless otherwise indicated on hardware schedule, comply with manufacturer's recommendations for size of closer, depending on width of door, frequency of use, atmospheric pressure, ADAAG requirements, and fire rating. Manufacturer to be certified by the following:
 - 1. BHMA Certified ANSI A156.4 Grade 1.
 - 2. ADA Complaint ANSI A117.1.
 - 3. UL/cUL Listed up to 3 hours.
 - 4. UL10C Positive Pressure Rated.
 - 5. UL10B Neutral Pressure Rated.
 - B. Material and Design:
 - 1. Provide aluminum non-handed bodies with full plastic covers.
 - 2. Closer shall have separate staked adjustable valve screws for latch speed, sweep speed, and backcheck.
 - 3. Provide Tri-Pack arms and brackets for regular arm, top jamb, and parallel arm mounting.
 - 4. Double heat-treated steel, tempered springs.
 - 5. Precision machined, heat-treated steel piston.
 - 6. Triple heat-treated steel spindle.
 - 7. Full rack and pinion operation.
 - C. Mounting:
 - 1. Out swing doors shall have surface parallel arm mount closers except where noted on hardware schedule.
 - 2. In swing doors shall have surface regular arm mount closers except where noted on hardware schedule.
 - 3. Provide brackets and shoe supports for aluminum doors and frames to mount fifth screw.

4. Furnish drop plates where top rail conditions on door do not allow for mounting of closer and where backside of closer is exposed through glass.
 - D. Size closers in compliance with requirements for accessibility (ADDAG). Comply with following maximum opening force requirements. Interior hinged openings: 5.0 lb (2.25 Kg) Fire rated and exterior openings shall have minimum opening force allowable by authority having jurisdiction.
 - E. Fasteners: Provide self-drilling and tapping wood screws, machine screws and sex nuts and bolts for each closer.
 - F. Acceptable Manufacturer: Hager Companies, which is located at: 139 Victor St.; St. Louis, MO 63104; Toll Free Tel: 800-325-9995; Tel: 314-772-4400; Fax: 800-782-0149; Email: [request info \(bwilkins@hagerco.com\)](mailto:request info (bwilkins@hagerco.com)); Web: <http://www.hagerco.com>
 1. Hager Companies: 5200/5300 Series.
- 2.29 CLOSERS (ALUMINUM BODY GRADE 2)
- A. Shall be product of one manufacturer. Unless otherwise indicated on hardware schedule, comply with manufacturer's recommendations for size of closer, depending on width of door, frequency of use atmospheric pressure, and fire rating. Manufacturer to be certified by the following:
 1. BHMA Certified ANSI A156.4 Grade 2.
 2. UL/cUL Listed up to 3 hours.
 3. UL10C Positive Pressure Rated.
 4. UL10B Neutral Pressure Rated.
 - B. Material and Design:
 1. Provide aluminum non-handed bodies with pinion cap cover.
 2. Closer shall have separate staked adjustable valve screws for latch speed, sweep speed, adjustable backcheck valve optional.
 3. Provide Tri-Pack arms and brackets for regular arm, top jamb, and parallel arm mounting.
 4. Double heat-treated steel tempered springs.
 5. Precision machined, heat-treated steel piston.
 6. Triple heat-treated steel spindle.
 - C. Mounting: Out swing doors shall have surface parallel arm mount closers except where noted on hardware schedule.
 1. In swing doors shall have surface regular arm mount closers except where noted on hardware schedule.
 2. Provide brackets and shoe supports for aluminum doors and frames to mount fifth screw.
 3. Furnish drop plates where top rail conditions on door do not allow for mounting of closer and where backside of closer is exposed through glass.
 - D. Fire rated and exterior openings shall have minimum opening force allowable by authority having jurisdiction.
 - E. Fasteners: Provide self-reaming and tapping wood and machine screws and sex nuts and bolts for each closer.
 - F. Acceptable Manufacturer:
 1. Hager Companies: 5400 Series.
- 2.30 LOW ENERGY POWER OPERATORS
- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty.
 - B. Standards: Manufacturer shall meet the requirements for:
 1. Power Assist and Low Energy Power Operated Doors: ANSI/BHMA A156.19
 2. ADA Complaint ANSI A117.1
 - C. Materials and Design:
 1. Self-contained electrical control unit, including necessary transformers, relays, rectifiers, and other electronic component for proper operation and switching. Control of door up to 350 pounds shall also include time delay for normal cycle.

2. On pair of doors, either door to be opened manually without the other door opening.
 3. Operates as a mechanical closer if power is disconnected. Forces consistent with ANSI A117.1 and ANSI A156.19.
 4. Provide delay switches for motor activation, exit device latch retraction interfacing and hold open times. Hold open times to be adjustable from 1 second to continuous seconds.
 5. Adjustable vestibule sequencing input for operation of two or more units. Specify 2-659-0240.
 6. Adjustable powered swing degree from 80 degrees to 110 degrees.
 7. Integral obstruction detection for closing and opening cycle.
 8. Adjustable built in stop, set from 80 degrees maximum to 180 degrees manual swing.
 9. When in "blow open "operation for smoke ventilation, operator will stay in the open position when loss of power.
 10. Boost to close selectable on/off switch.
- D. Signage: Provide signage in according to the requirements of ANSI/BHMA A156.19.
- E. Acceptable Manufacturer:
1. Hager Companies: 8400 Series.
- F. Actuators:
1. Opening cycle shall be activated by pressing switches with international symbol of accessibility and "PUSH TO OPEN" engraved on faceplate.
 2. Switches shall be installed in standard 2-gang electrical wall box and placed in a location in compliance with ANSI A117.1.
 3. Wireless actuators optional.
- G. Acceptable manufacturer:
1. Hager Companies: 2-659-0172
- 2.31 PROTECTIVE TRIM
- A. Size of protection plate: Single doors, size two inches (51 mm) less door width (LDW) on push side of door, and one inch (25 mm) less on pull side of door. For pairs of doors, size one inch less (25 mm) door width (LDW) on push side of door, and 1/2 inch (13 mm) on pull side of door. Kick plates 10 inches (254 mm) high or sized to door bottom rail height. Mop Plates 4 inches (102 mm) high. Armor Plates 36 inches (914 mm) high. Manufacturer shall meet requirements for:
1. Architectural Door Trim: ANSI/BHMA A156.6.
 2. UL.
- B. Material and Design:
1. .050 inch (1.3 mm) gage stainless steel.
 2. Corners shall be square. Polishing lines or dominant direction of surface pattern shall run across the door width of plate.
 3. Bevel top, bottom and sides uniformly leaving no sharp edges. Edges shall be de-burred.
 4. Countersink holes for screws. Screws holes shall be spaced equidistant eight inches (203 mm) CTC, along a centerline not over 1/2 inch (13 mm) in from edge around plate. End screws shall be a maximum of 0.53 inch (1.35 mm) from corners.
- C. UL label stamp required on protection plates when top of plate is more than 16 inches (406 mm) above bottom of door on fire rated openings. Verify door manufacturers UL listing for maximum height and width of protection plate to be used.
- D. Acceptable Manufacturer:
1. Hager Companies: 194S.
- 2.32 STOPS AND HOLDERS
- A. Wall Stops: Provide door stops wherever necessary to prevent door or hardware from striking an adjacent

partition or obstruction. Provide wall stops when possible. Door stops and holders mounted in concrete floor or masonry walls shall have stainless steel machine screws and lead expansion shields. Manufacturer shall meet requirements for Auxiliary Hardware: ANSI/BHMA A156.16.

- B. Acceptable Manufacturer:
 - 1. Hager Companies 232W convex, 236W concave.
- C. Overhead Stops and Holders: Provide overhead stop and holders for doors that open against equipment, casework sidelights and other objects that would make wall stops/holders and floor stops/holders inappropriate. Provide sex bolt attachments for mineral core wood door applications.
- D. Standards: Manufacturer shall be certified by the following: Overhead Stops and Holders: ANSI/BHMA A156.8 Grade 1.
- E. Acceptable Manufacturer:
 - 1. Hager 7000 SRF Series, heavy duty surface, 7000 CON Series heavy duty concealed.

2.33 ELECTROMAGNETIC HOLDERS

- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for:
 - 1. ANSI 156.15 Grade 1.
 - 2. UL/ULC listed.
 - 3. California State Fire Marshall listed (CSFM).
 - 4. City of New York MEA approved.
- B. Material and Design: Provide electromagnetic holders where self-closing fire doors and smoke barrier doors are required to be held open. Electromagnetic holders to be fail safe, when electrical current is interrupted, doors release to close automatically. Holding force shall be 25-40 lb (11.25 to 18 Kg).
- C. Acceptable Manufacturer:
 - 1. Hager Companies: 380 Series.

2.34 PROXIMITY/ PIN READER

- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Provide access up to 650 card users and shall be a HID compatible proximity reader. Material and Design:
 - 1. Weather resistance two-piece enclosure stand alone access control reader.
 - 2. Access mode selectable, proximity card only, proximity card plus pin number, or key in card number only.
 - 3. Key pad programmable does not need software or computer.
 - 4. Key pad lockout and flashing red LED activated when wrong password is entered more than five times.
 - 5. Lock and alarm outputs relays programmable 1-99 seconds or on-off latching.
- B. Options:
 - 1. HID ProxCards II, 25ea. cards 2-679-0021.
 - 2. HID ProxCards II, 100ea cards 2-679-0022.
 - 3. HID ProxKey II, 10ea key fobs 2-679-0023.
 - 4. HID ProxKey II, 100ea. key fobs 2-679-0024.
- C. Acceptable Manufacturer:
 - 1. Hager Companies 2920.

2.35 KEYPADS

- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Standalone digital keypad, control access of single entry point with up to 500 users. Material and Design:
 - 1. 1-6 digit PIN codes with 4 outputs, 2 relays and solid status outputs timed or latching (on/off).
 - 2. LED status: access, lockout.
 - 3. Tactile audible key press with selectable volume.
 - 4. Timed anti-pass back with keypad tamper lockout.

5. Choice of door sense/relay inhibit input functions; Forced Entry/Door prop alarm; Door ajar; Inhibit relay 1 or 2; Auto re-locks when door closes;
 6. Choice of 2 solid status output functions: Alarm shunt; Forced entry; Door ajar; Tamper lockout; Keypad active.
- B. Acceptable Manufacturer:
1. Hager Companies 2915 indoor keypad; 2916 outdoor keypad.
- 2.36 KEY SWITCHES
- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Material and Design:
1. Single gang, wall mounted, recessed mortise cylinder.
 2. Tamper resistance spanner screws.
 3. 20 gauge stainless steel faceplate.
- B. Functions:
1. Momentary (MO); Timed actuation (1-60 seconds); Alternate action (on/off) (AA)
 2. Anti-tamper switch (ATS).
 3. One (1) green LED (LEDG).
 4. One (1) red LED (LEDR).
 5. One (1) green LED and one (1) red LED (2LED).
- C. Acceptable Manufacturer:
1. Hager Companies 29KS ASD ((AA) SPDT; 29KS MSD (MO) SPOT; 29KS ADD (AA) DPDT; 29KS MDD (MO) DPDT.
- 2.37 EXIT SWITCHES
- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Design:
1. 2 inches (51 mm) square button "PUSH TO EXIT".
 2. Single gang, wall mounted, integrated electronic timer, fixed 30 seconds.
 3. Momentary, SPDT.
- B. Standards: Manufacturer shall meet requirements for:
1. IBC 1008.1.3.4.
 2. NFPA 7.2.1.6.2.
 3. California Fire Code.
 4. One (1) green LED (LEDG).
 5. One (1) red LED (LEDR).
 6. One (1) green LED and one (1) red LED (2LED).
- C. Acceptable Manufacturer:
1. Hager Companies 2973.
- 2.38 TOUCHLESS EXIT SWITCHES
- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Design:
1. No touch wave to exit switch with no moving parts.
 2. Dual LED, illuminated sensor indicates status.
 3. Sensing range up to 4 inches (102 mm).
 4. DPDT dry contact.
- C. Acceptable Manufacturer:
1. Hager Companies 2978.
- 2.39 PRESENCE INFARED EGRESS SENSOR
- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall

meet requirements for UL 294 infrared egress sensor. Design:

1. Unlocks door automatically when persons approaching door are detected.
2. Code compliant Fail Safe mode releases locks when power to PRI sensor is interrupted.
3. 2 SPDT dry contacts.

B. Acceptable Manufacturer:

1. Hager Companies 2-679-0612 Black; 2-679-0611 White.

2.40 POWER TRANSFER

A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for:

1. UL Listed Miscellaneous Fire Door Accessories.
2. UL 10C Listed for up to 3 hours on fire rated doors and frames.
3. Classified according to Uniform Building Code (UBC) Standard 7-2, Fire Test of Door Assemblies (1997).

B. Design:

1. Stainless steel tubular wire transfer and cast housing with steel back boxes to provide weather and tamper resistance when door is open or closed.
2. Mortise door and frame installation.
3. Two 18ga. wires, 5 amps @ 12/24 VAC/DC.

C. Acceptable Manufacturer:

1. Hager Companies 2-679-0621 US28, 2 conductor; 2-679-0623 US28 10 conductor.

2.41 POWER SUPPLIES (for ELR exit devices)

A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for UL listed power supply. Design:

1. Use with 4500 and 4600 Series Electric Latch Retraction (ELR) exit devices.
2. Automatic operator interface.
3. 24VDC and 12VDC constant voltage outputs.
4. Adjustable time delay.

B. Acceptable Manufacturer:

1. Hager Companies: 2901.
2. Hager Companies: 2902 for day/night mode of operation.

2.42 POWER SUPPLY (for fail safe or fail secure locking devices)

A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for UL listed power supply. Design:

1. Interface with building alarm controls, card readers, keypads, and other door controls.
2. Filtered and regulated 24 VDC constant voltage; 2 AMP load capacity; Over voltage/short circuit protection; Surge protection for locking devices.
3. Interface relay; Adjustable time delay.

B. Acceptable Manufacturer:

1. Hager Companies: 2903.

2.43 POWER SUPPLY (for electrified locking devices and automatic door operator)

A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for UL listed power supply. Design:

1. Power and control for openings with electrified locking device and automatic door operator.
2. Filtered and regulated 24 VDC constant voltage; 2 AMP load capacity.
3. Voltage overload/short circuit protection; Surge protection for locking devices.
4. Interface relay; Adjustable time delay.
5. Separate inputs for activation switch on entry and egress and ingress side of opening.

6. Relay contact output to automatic operator.
 7. Input optional emergency release switch.
 8. Auxiliary 24 VDC output and separate 24VDC outputs for Fail SAFE and FAIL SECURE electrified locking devices.
- B. Acceptable Manufacturer:
1. Hager Companies: 2904.
- 2.44 POWER SUPPLY (for modular access control)
- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for UL listed power supply. Design:
1. Use with modular access control systems
 2. Field selectable filtered and regulated 12 VDC or 24 VDC constant voltage; 1 AMP load capacity; Circuit breaker protected AC input voltage, secondary output PTC protected.
 3. Fire alarm input provides simultaneous release of Fail Safe locks and holders.
 4. Interface relay.
 5. LED status indicators provide information regarding AC input, DC output, and battery backup status.
 6. Separate inputs for activation switch on entry and egress and ingress side of opening.
 7. 5 amp hour battery backup.
 8. Input 115 VAC (230 VAC optional).
 9. Optional dual 12 VDC or 24 VDC output.
- B. Acceptable Manufacturer:
1. Hager Companies: 2908.
- 2.45 DOOR GASKETING AND WEATHERSTRIP
- A. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing where indicated on hardware schedule. Provide non-corrosive fasteners for exterior applications.
1. Perimeter gasketing: Apply to head and jamb, forming seal between door and frame.
 2. Meeting stile gasketing: Fasten to meeting stiles, forming seal when doors are in closed position.
 3. Door bottoms: Apply to bottom of door, forming seal with threshold or floor when door is in closed position.
 4. Sound Gasketing: Cutting or notching for stop mounted hardware not permitted.
 5. Drip Guard: Apply to exterior face of frame header. Lip length to extend 4 inches (102 mm) beyond width of door.
- B. Standards: Manufacturer shall meet requirements for:
1. Door Gasketing and Edge Seal Systems: ANSI/BHMA A156.22.
 2. Shall be BHMA certified for door sweeps, automatic door bottoms, and adhesive applied gasketing. (721).
- C. Smoke-Labeled Gasketing: Comply with NFPA 105 listed, labeled, and acceptable to authorities having jurisdiction, for smoke control indicated. Provide smoke labeled gasketing on 20 minute rated doors and on smoke rated doors.
- D. Fire-Rated Gasketing: Comply with NFPA 80 listed, labeled, and acceptable to Authorities Having Jurisdiction, for fire ratings indicated.
- E. Refer to Wood Doors specification for Category A or Category B. Comply with UBC 7-2 and UL10C positive pressure where frame applied intumescent seals are required. Provide Hager # 720 for single and 720 by 724 for a pair of doors.
- F. Acceptable Manufacturer: Hager Companies, which is located at: 139 Victor St.; St. Louis, MO 63104; Toll Free Tel: 800-325-9995; Tel: 314-772-4400; Fax: 800-782-0149; Email: [request info \(bwilkins@hagerco.com\)](mailto:request info (bwilkins@hagerco.com)); Web: <http://www.hagerco.com>

1. Perimeter Gasketing: Hager Companies: 721S/720 x 724, adhesive applied, 881S stop applied.
2. Sound Seal: Hager Companies: 864S.
3. Meeting Stile Weather-strip: Hager Companies: 872SN.
4. Door Bottom Sweeps: Hager Companies: 750S.
5. Automatic Door Bottoms: Hager Companies: 740S.
6. Overhead Drip Guard: Hager Companies: 810S.

2.46 THRESHOLDS

- A. Set thresholds for exterior and acoustical openings in full bed of sealant with lead expansion shields and stainless steel machine screws complying with requirements specified in Division 7 Section "Joint Sealants". Notched in field to fit frame by hardware installer. Refer to Drawings for special details. Manufacturer to be certified by the following:
 1. Thresholds: ANSI/BHMA A156.21.
 2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- B. Acceptable Manufacturer:
 1. Hager Companies: 413S/520S.

2.47 SILENCERS

- A. Where smoke, light, or weather seal are not required, provide three silencers per single door frame, two per double door frame and four per Dutch door frame. Manufacturer shall meet requirements for: Auxiliary Hardware: ANSI/BHMA A156.16.
- B. Acceptable Manufacturer:
 1. Hager Companies: 307D for hollow metal frame, 308D for wood frame.

2.48 KEY CABINET

- A. Provide key cabinet, surface mounted to wall. Key control system: Include two sets of key tags, hooks, labels, and envelopes. Contain system in metal cabinet with baked enamel finish. Capacity shall be able to hold actual quantities of keys, plus 25 percent. Provide tools, instruction sheets and accessories required to complete installation.
- B. Acceptable Manufacturer:
 1. Lund Equipment.
 2. Telkey Incorporated.
 3. Key Control.

2.49 SIGNAGE

- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for: Signage: ANSI/BHMA A156.16. Grade 2 Braille Translation conforming to section 4.3 requirements.
- B. Materials and Design: Provide 0.125 inch (3 mm) thick plastic. Size of sign to be 6 inches by 8 inches (152 mm by 203 mm) fastened with double-sided pressure sensitive tape.
- C. Acceptable Manufacturer:
 1. Hager Companies: 365M/W, 368U.

2.50 FINGER GUARDS

- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer to be UL listed for use on fire doors rated up to 3 hours for metal door and 1 hour for wood doors.
- B. Materials and Design: Provide aluminum tube with internal spring mechanism that maintains constant tension against the fabric that prevents fingers from entering area behind edge of door on hinge side.
- C. Finishes: Available in clear anodized aluminum with white polyethylene material or dark bronze anodized aluminum with black polyethylene material.
- D. Acceptable Manufacturer:

1. National Guard: 2248 push side mount, 2252 pull side mount or approved equal.

2.51 FINISHES

- A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if within range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within range of approved Samples.
- B. Comply with base material and finish requirements indicated by ANSI/BHMA A156.18 designations in hardware schedule.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install hardware per manufacturer's instructions and in compliance with the following as applicable:
 1. NFPA 80; NFPA 105; ICC/ANSI A117.1; ANSI/BHMA A156.115 Hardware Preparation in Steel Doors and Steel Frames; ANSI/BHMA A156.115W Hardware Preparation in Wood Doors with Wood or Steel Frames; DHI Publication - Installation Guide for Doors and Hardware; UL10C/UBC7-2; Local building code.
 2. Approved shop drawings.
 3. Approved finish hardware schedule.
- B. Do not install surface mounted items until finishes have been completed on substrates involved. Set unit level, plumb and true to line location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

3.3 FIELD QUALITY CONTROL

- A. Material supplier to schedule final walk through to inspect hardware installation ten business days before final acceptance of Owner. Material supplier shall provide a written report detailing discrepancies of each opening to General Contractor within seven calendar days of walk through..

3.4 ADJUSTMENT, CLEANING AND DEMONSTRATING

- A. Adjustment: Adjust and check each opening to ensure proper operation of each item of finish hardware. Replace items that cannot be adjusted to operate freely and smoothly or as intended for application at no cost to Owner.
- B. Cleaning: Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no cost to Owner.
- C. Demonstration: Conduct a training class for building maintenance personnel demonstrating the adjustment, operation of mechanical and electrical hardware. Special tools for finished hardware to be turned over and explained usage at this meeting.

3.5 PROTECTION

- A. Leave manufacturer's protective film intact and provide proper protection for all other finish hardware items that do not have protective material from the manufacture until Owner accepts Project as complete.

3.6 HARDWARE SET SCHEDULE

- A. Leave manufacturer's protective film intact and provide proper protection for all other finish hardware items that do not have protective material from the manufacture until Owner accepts Project as complete.

3.7 PROTECTION

- A. Guide: Door hardware items have been placed in sets which are intended to be a guide of design, grade, quality, function, operation, performance, exposure, and like characteristics of door hardware, and may not be complete. Provide door hardware required to make each set complete and operational.
- B. Hardware schedule does not reflect handing, backset, method of fastening and like characteristics of door hardware and door operation.
- C. Review door hardware sets with door types, frames, sizes and details on drawings. Verify suitability and adaptability of items specified in relation to details and surrounding conditions.

3.8 HARDWARE SCHEDULE

Set 01

Door #'s: 111.1, 311.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Cylinder	3901 / 3902	US26D	HA

Note 1: All other hardware by Aluminum/Glass Automatic Sliding Door supplier

Set 01.1

Door #'s: 191.2, 395.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Continuous Geared Hinge		UC1	BO
2 ea.	Pull	C09	UC1	BO
1 ea.	Cylinder	3901 / 3902	US26D	HA
1 ea.	Gasket		Charcoal	BO
1 ea.	Closer	5100 PA HDCS	ALM	HA
1 ea.	Threshold			BO

Note 1: All other hardware and point to point wiring diagram by Aluminum Storefront supplier.

Note 2: Selected hardware finish to match PPG UC109852, Duranar Charcoal.

Set 01.2

Door #'s: 241.2

Each opening to receive:

Qty.	Type	Description	Finish	MFG
2 ea.	Continuous Geared Hinge		UC1	BO
2 ea.	Electric Exit Device	1686		BO
2 ea.	Power Transfer	EPT 10		BO
1 ea.	Cylinder	3901 / 3902	US26D	HA
2 ea.	Closer	5100 PA HDCS	ALM	HA
1 ea.	Threshold			BO
1 ea.	Power Supply	SP 1000X		BO
1 ea.	Gasket		Charcoal	BO
1 ea.	Adjustable Wool/Poly. Fin Astragal			BO

Note 1: All other hardware and point to point wiring diagram by Aluminum Storefront supplier.

Note 2: Selected hardware finish to match PPG UC109852, Duranar Charcoal

Note 3: Card reader by security vendor.

Set 02

Door # 291.2

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Continuous Hinge	780-112HD 95"	CLR	HA
1 ea.	Rim Exit Device	4501 RIM WR 48"	US32D	HA
1 ea.	Exit Device Trim	45CE WTN	US26D	HA
1 ea.	Mortise Cylinder	3902	US26D	HA
1 ea.	Electric Strike	9600 SERIES	US32D	HES
1 ea.	Closer	5100 PA HDCS	ALM	HA
1 ea.	Threshold	412S 48"	MIL	HA
1 ea.	Sweep	774SV 48"	MIL	HA
1 ea.	Weather-Strip	891SV 48" x 96"	MIL	HA
1 ea.	Rain Drip	810S 52"	MIL	HA

Note 1: FBC # 23130.6

Note 2: Card reader by security vendor.

Set 03

Door # 213.2, 503.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Continuous Hinge	780-112HD 95"	CLR	HA
1 ea.	Mortise Entrance Lock	3853 SECT WTN	US32D	HA
1 ea.	Electric Strike	1600 SERIES	US32D	HES
1 ea.	Closer	5100 PA HDS	ALM	HA
1 ea.	Threshold	412S 48"	MIL	HA
1 ea.	Sweep	774SV 48"	MIL	HA
1 ea.	Weather-Strip	891SV 48" x 96"	MIL	HA
1 ea.	Rain Drip	810S 52"	MIL	HA

Note 1: FBC # 22010.6

Note 2: Card reader by security vendor.

Set 04

Door # 501.1, ~~502.1~~, 504.1, 505.1, 506.1, 511.1, 512.1.

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Continuous Hinge	780-112HD 95"	CLR	HA
1 ea.	Mortise Storeroom Lock	3881 SECT WTN	US32D	HA
1 ea.	Closer	5100 PA HDS	ALM	HA
1 ea.	Threshold	412S 48"	MIL	HA
1 ea.	Sweep	774SV 48"	MIL	HA
1 ea.	Weather-Strip	891SV 48" x 96"	MIL	HA
1 ea.	Rain Drip	810S 52"	MIL	HA

Note 1: FBC # 22010.6

Set 04.1

Door # 502.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Continuous Hinge	780-112HD 95"	\CLR	HA
1 ea.	Rim Exit Device	4501 RIM WR	US32D	HA
1 ea.	Exit Device Trim	45CE WTN	US26D	HA
1 ea.	Mortise Cylinder	3902	US26D	HA
1 ea.	Closer	5100 PA HDS	ALM	HA
1 ea.	Threshold	412S 48"	MIL	HA
1 ea.	Sweep	774SV 48"	MIL	HA
1 ea.	Weather-Strip	891SV 48" x 96"	MIL	HA
1 ea.	Rain Drip	810S 52"	MIL	HA

Note 1: FBC # 22130.6

Set 11

Door #'s: 113.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Butt Hinge		UC109852	BO
2 ea.	Pull	CO9	UC190852	BO
1 ea.	Cylinder	3901 / 3902	US26D	HA
1 ea.	Closer	5100 PA HDCS	ALM	HA
1 ea.	Gasket		Charcoal	BO

Note1 : All other hardware by Aluminum Storefront supplier.

Note 2: Selected hardware finish to match PPG UC109852, Duranar Charcoal.

Set 12

Door # 109.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Push / Pull Latch	311H 5"	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Armor Plate	190S 34" x 46"	US32D	HA
1 ea.	Seal	726S 216"	Charcoal	HA

Set 12.1

Door # 203.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Push / Pull Latch	311H 5"	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Armor Plate	190S 34" x 46"	US32D	HA
1 ea.	Floor Stop	242F	US26D	HA
1 ea.	Seal	726S 216"	CHARCOAL	HA

Set 12.2

Door # 201.2, 202.2, 215.1, 217.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Push / Pull Latch	311H 5"	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 46"	US32D	HA
1 ea.	Floor Stop	242F	US26D	HA
1 ea.	Seal	726S 216"	CHARCOAL	HA

Set 12.3

Door # 201.1, 202.1, 213.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Push / Pull Latch	311H 5"	US26D	HA
1 ea.	Closer	5200 TRK NHOTA	ALM	HA
1 ea.	Armor Plate	190S 34" x 46"	US32D	HA
1 ea.	Seal	726S 216"	CHARCOAL	HA

Set 12.4

Door # 214.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Push / Pull Latch	311H 5"	US26D	HA
1 ea.	Closer	5200 TRK NHOTA	ALM	HA
1 ea.	Armor Plate	190S 8" x 46"	US32D	HA
1 ea.	Seal	726S 216"	CHARCOAL	HA

Set 13

Door # 111.2

Each opening to receive:

Qty.	Type	Description	Finish	MFG
	Weld on Pivots		UC1	BO
1 ea.	Exit Device	35A-F	626	BO
1 ea.	Lever Trim	360L	626	BO
1 ea.	Cylinder	3901 / 3902	US26D	HA
1 ea.	Closer	4040XP Surface Mounted	689	HA
1 ea.	Perimeter Gasket		CHARCOAL	BO
1 ea.	Automatic Door Bottom	420APKL Smoke Seal		BO

Note 1: Fire-rated door, reference 08 40 13. Balance of hardware By Others [BO].

Note 2: Selected hardware finish to match PPG UC109852, Duranar Charcoal.

Set 14

Door # 293.2

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
2 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Hinge	BB1279 4.5 x 4.5 ETW-4	US26D	HA
1 ea.	Lockset	2580 WTN	US26D	HA
1 ea.	Electric Strike	2930	US32D	HA
2 ea.	Flush bolt	282D	US26D	HA
1 ea.	Dust Proof Strike	280X	US26D	HA
2 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 46"	US32D	HA
1 ea.	Kick Plate	190S 8" x 22"	US32D	HA
2 ea.	Floor Stop	242F	US26D	HA
1 ea.	Seal	726S 240"	CHARCOAL	HA

Note 1: Astragal by Door Manufacture.

Note 2: Card reader by security vendor.

Set 14.1

Door # 293.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Passage Set	2510 WTN	US26D	HA
2 ea.	Flush bolt	282D	US26D	HA
1 ea.	Dust Proof Strike	280X	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 46"	US32D	HA
1 ea.	Kick Plate	190S 8" x 22"	US32D	HA
1 ea.	Wall Stop	236W	US32D	HA
2 ea.	Silencer	307D	GREY	HA

Note 1: Astragal by Door Manufacture.

Set 15

Door # 196.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Lockset	2580 WTN	US26D	HA
1 ea.	Electric Strike	2925	US32D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 34"	US32D	HA
1 ea.	Floor Stop	242F	US26D	HA
4 ea.	Silencer	307D	GREY	HA

Note 1: Card reader by security vendor.

Set 15.1

Door # 191.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Lockset	2580 WTN	US26D	HA
1 ea.	Electric Strike	2925	US32D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 46"	US32D	HA
1 ea.	Floor Stop	242F	US26D	HA
4 ea.	Silencer	307D	GREY	HA

Note 1: Card reader by security vendor.

Set 16

Door # 194.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
6 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
2 ea.	Exit Device	4501 LBR F 48" x 84"	US26D	HA
1 ea.	Fire Bolt	2-649-0166	US32D	HA
2 ea.	Kick Plate	190S 8" x 40"	US32D	HA
2 ea.	Floor Stop	242F	US26D	HA
1 ea.	Seal	726S 252"	CHARCOAL	HA
1 ea.	Adjustable Wool/Poly. Fin Astragal			BO

Note 1: Auto Operators by others.

Set 17

Door # 134.1, 212.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Storeroom Lockset	2580 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Set 17.1

Door # 134.2.

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Storeroom Lockset	2580 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
4 ea.	Silencer	307D	GREY	HA

Set 17.2

Door # 142.1, 212.2, 243.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Storeroom Lockset	2580 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	36W	US32D	HA
1 ea.	Seal	726S 204"	CHARCOAL	HA

Set 18

Door # 131.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Storeroom Lockset	2580 WTN	US26D	HA
1 ea.	Electric Strike	2925	US32D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Note 1: Card reader by security vendor.

Set 19

Door # 137.1, 139.1, 211.1, 223.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Office Lockset	2550 WTN	US26D	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Set 20

Door # 132.1, 224.1, 224.2, 363.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Passage Set	2510 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Note 1: No Wall Stop Required on opening 224.1

Set 20.1

Door # 133.1, 503.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Passage Set	2510 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
1 ea.	Seal	726S 204"	CHARCOAL	HA

Set 21

Door # 115.1, 116.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Privacy Set	2540 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 34"	US32D	HA
1 ea.	Mop Plate	190S 4" x 35"	US32D	HA
1 ea.	Wall Stop	236W	US32D	HA
4 ea.	Silencer	307D	GREY	HA

Set 21.1

Door # 138.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Privacy Set	2540 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 34"	US32D	HA
1 ea.	Mop Plate	190S 4" x 35"	US32D	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Set 21.2

Door # 141.1, 237.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Privacy Set	2540 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 34"	US32D	HA
1 ea.	Mop Plate	190S 4" x 35"	US32D	HA
1 ea.	Floor Stop	242F	US26D	HA
3 ea.	Silencer	307D	GREY	HA

Set 21.3

Door # 225.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Privacy Set	2540 WTN	US26D	HA
1 ea.	Overhead Stop	6016 SUR SZ1	ALM	HA
1 ea.	Kick Plate	190S 8" x 34"	US32D	HA
1 ea.	Mop Plate	190S 4" x 35"	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Set 22

Door # 226.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Privacy Set	2540 WTN	US26D	HA
1 ea.	Kick Plate	190S 8" x 34"	US32D	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Set 31

Door #'s: 491.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Continuous Geared Hinge		UC1	BO
2 ea.	Pull	C09	UC1	BO
1 ea.	Cylinder	3901 / 3902	US26D	HA
1 ea.	Gasket			BO
1 ea.	Closer	5200 MLT	UC1	BO

Note 1: All other hardware by Aluminum Storefront supplier.

Note 2: Selected hardware finish to match PPG UC109852, Duranar Charcoal.

Set 32

Door # 363.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Push / Pull Latch	311H 5"	US26D	HA
1 ea.	Wall Stop	236W	US32D	HA
1 ea.	Armor Plate	190S 34" x 46"	US32D	HA
1 ea.	Seal	726S 216"	CHARCOAL	HA

Set 33

Door # 401.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Continuous Hinge	780-224LL 95"	CLR	HA
1 ea.	Passage Set	2510 WTN LL	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
1 ea.	Seal	726S 240"	CHARCOAL	HA

Set 34

Door # 402.1, 492.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Passage Set	2510 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
4 ea.	Silencers	307D	GREY	HA

Set 34.1

Door # 403.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Continuous Hinge	780-224HD 95"	CLR	HA
1 ea.	Lockset	2570 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
1 ea.	Seal	726S 240"	CHARCOAL	HA

Note 1: Threshold and door bottom by others if required.

Set 34.2

Door # 404.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Continuous Hinge	780-224HD 95"	CLR	HA
1 ea.	Lockset	2580 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Seal	726S 240"	CHARCOAL	HA

Set 35

Door # 394.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Lockset	2580 WTN	US26D	HA
1 ea.	Electric Strike	2925	US32D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 40"	US32D	HA
1 ea.	Floor Stop	242F	US26D	HA
4 ea.	Silencer	307D	GREY	HA

Note 1: Card reader by security vendor.

Set 36

Door # 336.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Storeroom Lockset	2580 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
1 ea.	Seal	726S 204"	CHARCOAL	HA

Set 36.1

Door # 323.1, 334.1, 335.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Storeroom Lockset	2580 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Set 36.2

Door # 347.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1102 4.5 x 4.5	US26D	HA
1 ea.	Storeroom Lockset	2580 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencers	307D	GREY	HA

Set 36.3

Door # 351.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Storeroom Lockset	2580 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Floor Stop	242F	US26D	HA
1 ea.	Seal	726S 228"	CHARCOAL	HA

Set 37

Door # 321.1, 322.1, 324.1, 325.1, 326.1, 327.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Office Lockset	2550 WTN	US26D	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Set 37.1

Door # 344.1, 345.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Office Lockset	2550 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
3 ea.	Silencer	307D	GREY	HA

Set 38

Door # 301.1, 302.1, 303.1, 304.1, 305.1, 306.1, 307.1, 308.1, 309.1, 310.1, 311.1, 312.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Passage Set	2510 WTN	US26D	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Set 38.1

Door # 341.1, 342.1, 343.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Passage Set	2510 WTN	US26D	HA
1 ea.	Wall Stop	236W	US32D	HA
1 ea.	Seal	726S 204"	CHARCOAL	HA

Set 38.2

Door # 393.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Passage Set	2510 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Wall Stop	236W	US32D	HA
1 ea.	Seal	726S 204"	CHARCOAL	HA

Set 39

Door # 337.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Privacy Set	2540 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 34"	US32D	HA
1 ea.	Mop Plate	190S 4" x 35"	US32D	HA
1 ea.	Wall Stop	236W	US32D	HA
3 ea.	Silencer	307D	GREY	HA

Set 39.1

Door # 346.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
3 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Privacy Set	2540 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 34"	US32D	HA
1 ea.	Mop Plate	190S 4" x 35"	US32D	HA
1 ea.	Floor Stop	242F	US26D	HA
3 ea.	Silencer	307D	GREY	HA

Set 39.2

Door # 411.1, 412.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Privacy Set	2540 WTN	US26D	HA
1 ea.	Closer	5200 MLT	ALM	HA
1 ea.	Kick Plate	190S 8" x 34"	US32D	HA
1 ea.	Mop Plate	190S 4" x 35"	US32D	HA
4 ea.	Silencer	307D	GREY	HA

Set 39.3

Door # 414.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
4 ea.	Hinge	ECBB1100 4.5 x 4.5	US26D	HA
1 ea.	Privacy Set	2540 WTN	US26D	HA
1 ea.	Overhead Stop	6016 SUR SZ2	ALM	HA
4 ea.	Silencer	307D	GREY	HA

Set 40

Door # 353.1, 353.2, 354.1, 364.1

Each opening to receive:

Qty.	Type	Description	Finish	MFG
1 ea.	Track System w/ Soft Close	SF280C-SWTK/8-1411-1 (-1413-1 FOR DOORS OVER 132 LBS)	AL	PEM
1 ea.	Pull Pair	10L	US32D	HA

Note 1: Track to be field cut to correct length.

END OF SECTION